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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/714,159	11/14/2003	Marty Gardner	BW-DKT01013B	2375
32175	7590	03/24/2004	EXAMINER	
BORGWARNER INC. POWERTRAIN TECHNICAL CENTER 3800 AUTOMATION AVENUE, SUITE 100 AUBURN HILLS, MI 48326-1782			CHANG, CHING	
			ART UNIT	PAPER NUMBER
			3748	

DATE MAILED: 03/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/714,159

Applicant(s)

GARDNER ET AL.

Examiner

Ching Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-8, 10-14 is/are rejected.
- 7) ☒ Claim(s) 2 and 9 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/14/03.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. ***Claims 1 and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Simpson (US Patent No. 6,250,265).***

Simpson discloses an internal combustion engine, comprising: a crankshaft, the crankshaft being rotatable about a first axis; a camshaft (36); the camshaft being rotatable about a second axis, the camshaft being subject to torque reversals during rotation thereof; a phaser (See Figs. 1, 3, 5, 7) for adjusting timing between a camshaft and a timing gear (38) coupled to a crankshaft of an engine, comprising: a rotor (20) having a plurality of circumferentially spaced apart vanes (22, 24, 26) and a central cylindrical recess (See Figs. 2, 4, 6) located along an axis of rotation, the rotor being connectable to the camshaft for rotation therewith; a housing (28) connectable to the timing gear for rotation therewith, having a body coaxially surrounding the rotor, the body having a plurality of recesses (30, 32, 34) circumferentially spaced apart for

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receiving the vanes of the rotor, and permitting rotational movement of the vanes therein, wherein each of the vanes divides one of the recesses into a first portion and a second portion, the first portion and the second portion of the recesses being capable of sustaining fluid pressure, such that introduction of a fluid under pressure into the first portion causes the rotor to move in a first rotational direction relative to the housing and introduction of a fluid under pressure into the second portion causes the rotor to move in an opposite rotational direction relative to the housing, a spool (58, 60) located within the cylindrical recess of the rotor and being slidably movable along the axis of rotation of the rotor, the spool comprising a plurality of lands which block and connect a plurality of passageways in the rotor (See Figs. 1, 3, 5, 7), such that by slidably moving the spool in the cylindrical recess of the rotor, the flow of fluid from a fluid input (68) to the first portion and the second portion is controlled, varying the rotational movement of the housing relative to the rotor; and an inlet check valve (70, 72) located in the rotor, wherein the inlet check valve controls a backflow of fluid entering the fluid input; wherein the fluid comprises engine lubricating oil.

The applied reference has a common Assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. ***Claims 3-5, 8, and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Simpson (as applied to claim 1 above) in view of Koda (US Patent No. 6,129,060).***

Simpson discloses the invention, however, fails to disclose the engine further comprising an electromechanical actuator coupled to the spool, an engine control unit coupled to the electromechanical actuator, and a spring for biasing the spool valve.

The patent to Koda on the other hand, teaches that it is conventional in the art of camshaft phase changing apparatus, to utilize an electromechanical actuator (36) coupled to the spool (22, 35), an engine control unit (50) coupled to the electromechanical actuator, and a spring (45) for biasing the spool valve.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the electromechanical actuator, the engine control unit and the spring as taught by Koda in the Simpson device, since the use thereof would provide an engine with an improved camshaft phase changing apparatus.

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5. ***Claims 6, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Simpson in view of Koda (as applied to claims 3/1 and 10/8), and further in view of Butterfield et al. (US Patent No. 5,172,659).***

The modified Simpson device discloses the invention, however, fails to disclose the actuator being a pulse-width modulated solenoid.

The patent to Butterfield on the other hand, teaches that it is conventional in the art of differential pressure control system for variable camshaft timing system, to utilize a pulse-width modulated solenoid (206), coupled to an engine couple control unit (208).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the pulse-width modulated solenoid as taught by Butterfield in the modified Simpson device, since the use thereof would provide an alternative control system for a variable camshaft timing system.

Allowable Subject Matter

6. Claims 2 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Speier (US Patent No. 6,363,896).

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ching Chang whose telephone number is (703)306-3478. The examiner can normally be reached on M-Th, 7:00 AM -5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (703)308-2623. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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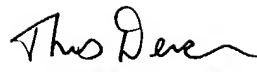
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Patent Examiner

A handwritten signature in cursive script, appearing to read "Ching Chang".

Ching Chang

A handwritten signature in cursive script, appearing to read "Thomas Denion".

THOMAS DENION
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700